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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
BOYD, JENNIFER A	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/804,556	PALLACH ET AL.	
	Examiner	Art Unit	
	Jennifer A. Boyd	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/19/04; 10/11/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of claims 1 - 10 in the reply filed on January 19, 2006 is acknowledged.

Claim Rejections - 35 USC § 102/103

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1 – 6 and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Costantino et al. (EP 1,069,232).

Costantino is directed to a composition for making textile fireproof (Title).

As to claims 1 and 3 - 4, Costantino teaches a flame-resistant additive for textile materials in particular microfiber non-woven fabrics comprising a mixture of a fireproofing component and a binder comprising an aqueous dispersion of an acrylic or maleic polymer or copolymer and a multifunctional cross-linker of the acrylic or maleic polymer or copolymer (Abstract).

Costantino notes that particularly good results have been obtained with the copolymer of acrylic acid and styrene (page 4, [0030]). Costantino teaches that the composition can be applied to the non-woven by means of a transfer roller where a roller is partially immersed in the suspension of the additive from the lower part toward the top onto the back face of the material (page 5, [0047]). The Examiner submits that the composition would at least partially saturate the non-woven fabric and thus bind at least a portion of the fibers together. It should be noted that the recitation of "for engine compartment lining" is not given patentable weight at this time since the prior art meets the structural and/or chemical limitations set forth and there is nothing on record to evidence that the prior art product could not function in the desired capacity. The burden is shifted upon the Applicant to evidence the contrary.

As to claim 2, it should be noted that the Examiner considers "wherein the binder is capable of..." to be a "capable of" type limitation. It has been held that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison, 69 USPQ 138.*

As to claim 5, Costantino teaches incorporating a fireproofing component comprising melamine and melamine cyanide and a clay or other adsorbent material (page 3, [0022]).

As to claim 8, Costantino teaches that the non-woven fabric can comprise polyester (pages 1 and 5).

Although Costantino does not explicitly teach the claimed binder has thermoplastic behavior in the temperature range of 20 – 200 C and a thermosetting behavior above 200 C as required by claim 1 and a binder is capable of being pre-crosslinked at a temperature of up to 200

C and cured at a temperature above 200 C as required by claim 2, it is reasonable to presume that the claimed properties are inherent to Costantino. Support for said presumption is found in the use of like materials (i.e. a binder comprising a copolymer of acrylic acid and styrene and a cross-linker) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would obviously have been present once the Costantino product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

5. Claims 1 – 6 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Horrocks et al. (US 5,645,926).

Horrocks is directed to fire and heat resistant materials (Title) suitable for protective and barrier fabrics structures such as transport upholstery barriers (column 1, lines 10 – 20).

As to claims 1 and 3 – 4, Horrocks teaches creating a web of VISIL fiber, covering the web with a single layer of sheath fabric and needle-punching both sides of the web. Horrocks notes that intumescent powder and bonding resin are added to the web before needling takes place (column 8, lines 10 – 20). Horrocks teaches that the intumescent powder comprises AMGARD MPC 1000 (ammonium polyphosphate) and the resin is REVACRYL 272 (acrylic and styrene/acrylic copolymer water based dispersions) (column 8, lines 15 – 30). It should be noted that the recitation of "for engine compartment lining" is not given patentable weight at this time since the prior art meets the structural and/or chemical limitations set forth and there is nothing on record to evidence that the prior art product could not function in the desired capacity. The burden is shifted upon the Applicant to evidence the contrary.

As to claim 2, it should be noted that the Examiner considers "wherein the binder is capable of..." to be a "capable of" type limitation. It has been held that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison, 69 USPQ 138.*

As to claim 5, Horrocks teaches incorporating an intumescent agent (column 8, lines 10 – 20); the Examiner equates this to Applicant's "flame retardant agent".

As to claim 6, Horrocks teaches that the intumescent agent or flame retardant may comprise PYROVATEX (column 6, lines 55 – 70). According to Horrocks in column 10, lines 15 – 30, PYROVATEX CP is a phosphorus and nitrogen-containing flame retardant. Additionally, Horrocks teaches that the phosphorus-based flame retardant may comprise ammonium polyphosphate (column 6, lines 55 – 65) whose generic formula is known in the art to be $[NH_4PO_3]_n$. As shown by the formula, ammonium polyphosphate contains both phosphorus and nitrogen.

Although Horrocks does not explicitly teach the claimed binder has thermoplastic behavior in the temperature range of 20 – 200 C and a thermosetting behavior above 200 C as required by claim 1 and a binder is capable of being pre-crosslinked at a temperature of up to 200 C and cured at a temperature above 200 C as required by claim 2, it is reasonable to presume that the claimed properties are inherent to Horrocks. Support for said presumption is found in the use of like materials (i.e. a binder comprising a copolymer of acrylic acid and styrene) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would obviously have

been present once the Horrocks product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

6. Claims 1 – 4, 8 and 10 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Sumii et al. (US 5,217,799).

Sumii is directed to a surface materials for interior materials of cars (Title).

As to claims 1 and 3 – 4, Sumii teaches a needle-punched felt impregnated with a synthetic resin emulsion (Abstract). Sumii teaches that the synthetic resin emulsion comprises a solid component composed of a synthetic resin having a melting temperature of 100 – 180 degrees C such as styrene-acrylic resin emulsions (column 3, lines 1 – 15). It should be noted that the recitation of "for engine compartment lining" is not given patentable weight at this time since the prior art meets the structural and/or chemical limitations set forth and there is nothing on record to evidence that the prior art product could not function in the desired capacity. The burden is shifted upon the Applicant to evidence the contrary.

As to claim 2, it should be noted that the Examiner considers "wherein the binder is capable of..." to be a "capable of" type limitation. It has been held that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison, 69 USPQ 138.*

As to claim 8, Sumii teaches that the needle-punched felt can comprise polyester, polyamide and other synthetic fibers (column 2, lines 25 – 40).

As to claim 10, Sumii teaches that a hot-melt fiber web is formed on the synthetic resin emulsion impregnated surface of the needle-punched felt (column 3, lines 45 – 60). The web

comprises fiber such as polyolefin (column 3, lines 45 – 64). The web can have a form of a film (column 3, lines 63 – 67). The Examiner equates the hot-melt fiber web to Applicant's "coating".

Although Sumii does not explicitly teach the claimed binder has thermoplastic behavior in the temperature range of 20 – 200 C and a thermosetting behavior above 200 C as required by claim 1 and a binder is capable of being pre-crosslinked at a temperature of up to 200 C and cured at a temperature above 200 C as required by claim 2, it is reasonable to presume that the claimed properties are inherent to Sumii. Support for said presumption is found in the use of like materials (i.e. a binder comprising a copolymer of acrylic acid and styrene) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed properties would obviously have been present once the Sumii product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

7. Claims 1 – 4 and 8 – 9 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over GB 1,054,877.

GB 1,054,877 is directed to a self-extinguishing bonded non-woven fabric (Title).

As to claims 1 and 3 - 4, GB 1,054,877 teaches a non-woven fabric bonded with a binding agent based on acrylic esters and/or butadiene (page 1, lines 20 – 30 and 40 – 50). GB 1,054,877 teaches that the polymers may comprise reactive groups which have a crosslinking effect under the influence of heat and/or catalysts (page 1, lines 54 – 56). It should be noted that the recitation of "for engine compartment lining" is not given patentable weight at this time since the prior art meets the structural and/or chemical limitations set forth and there is nothing on

record to evidence that the prior art product could not function in the desired capacity. The burden is shifted upon the Applicant to evidence the contrary.

As to claim 2, it should be noted that the Examiner considers "wherein the binder is capable of..." to be a "capable of" type limitation. It has been held that an element is "capable of" performing a function is not a positive limitation but only requires the ability to so perform. It does not constitute a limitation in any patentable sense. *In re Hutchison, 69 USPQ 138.*

As to claim 8, GB 1,054,877 teaches that the nonwoven fabric can comprise fibers such as cotton, rayon, polyester, polyamides, polyacrylonitrile, etc. (page 1, lines 30 – 40).

As to claim 9, GB 1,054,877 teaches that the nonwoven fabrics based on polyamides or polyesters are bonded with binder that is twice to four times the weight of the nonwoven and fabrics based on cotton or rayon are bonded with a binder that is once to twice the weight of the nonwoven (page 2, lines 30 – 45). The fabric in the Examples is 50 grams per square meters which meets the mass per unit area as required by Applicant.

Although GB 1,054,877 does not explicitly teach the claimed binder has thermoplastic behavior in the temperature range of 20 – 200 C and a thermosetting behavior above 200 C as required by claim 1 and a binder is capable of being pre-crosslinked at a temperature of up to 200 C and cured at a temperature above 200 C as required by claim 2, it is reasonable to presume that the claimed properties are inherent to GB 1,054,877. Support for said presumption is found in the use of like materials (i.e. a binder comprising a copolymer of acrylic acid and butadiene) which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re*

Fitzgerald 205 USPQ 594. In addition, the presently claimed properties would obviously have been present once the GB 1,054,877 product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

Claim Rejections - 35 USC § 103

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Horrocks et al. (US 5,645,926) in view of the article entitled "Phosphorus-Containing Epoxy for Flame Retardant: Synthesis, Thermal, and Flame-Retardant Properties" by Liu, et al.

Horrocks teaches that the phosphorus-based flame retardant may comprise ammonium polyphosphate (column 6, lines 55 – 65) whose generic formula is known in the art to be $[NH_4PO_3]_n$. Horrocks fails to teach the exact content of nitrogen and phosphorus where the elemental content of nitrogen is equal to or greater than 10% and the elemental content of phosphorus is greater than or equal to 5%.

Liu et al. is directed to flame-retardant resins (Title). Liu et al. teaches that there is a synergistic effect between phosphorus and nitrogen in flame retardancy. Liu teaches that high nitrogen content along with high phosphorus content help enhance the char yield and the LOI value as well as the flame retardance of the resin (page 620).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a high content phosphorus and high content nitrogen flame retardant agent as suggested by Liu in the material of Horrocks motivated by the desire to enhance the char yield, LOI value and the flame retardance of the substrate.

Horrocks in view of Liu fail to disclose that the flame retardant has a nitrogen content of equal to or greater than 10% by weight and phosphorus content of equal to or greater than 5% by weight. However, in the absence of unexpected results, it would have been obvious to one having ordinary skill in the art at the time the invention was made to optimize the amount of nitrogen and phosphorus based on the desired char yield, LOI value and level of flame retardancy since it has been held that where general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454 USPQ 233 (CCPA 1955). In the present invention, one would have been motivated to optimize the phosphorus and nitrogen content to tailor the level of flame retardancy based on desired level of char yield and LOI value.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Boyd
March 27, 2006

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